TEST REPORT

Title:	**EDS Enforcer Delayed Egress Controlling Element with ML450 Monitored Lock Case – Evaluation to EN 13637:2015**
Report Number:	**WTE-24-021**
On behalf of:	**ICS Security Solutions Ltd Unit 1 JBJ Business Park, Northampton Road, Blisworth, Northampton. NN7 3DW**
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Introduction

It was requested that White Technology and Engineering Ltd carry out an evaluation of the ICS Security Solutions Ltd EDS Enforcer delayed egress controlling element with ML450 monitored lock case to EN 13637:2015.

The results are presented below.

Samples

EN 13637 requires an electronically controlled exit system to consist of at least:

- An initiating element for requesting the release of electrical locking element.
- An electrical locking element for securing an exit door.
- An electrical controlling element for supplying, connecting and controlling electrical locking element and initiating element.

The initiating element was combined with the electrical controlling element in EDS Enforcer delayed egress controlling element.

The electrical locking element was the ML 450 Electronic Lock.

3 Samples each of the of the EDS Enforcer delayed egress controlling element with ML 450 Electronic Lock were supplied.

Samples were supplied on 13 March 2024, 6 April 2024 and 12 April 2024.

Results

The following EN 13637:2015 grades were used:

1	2	3	4	5	6	7	8	9	10	11
Category of use	Durability	Door mass	Suitability for use on fire / smoke doors	Safety	Corrosion humidity and IP protection	Security / holding force from outside	Security / holding force from inside	Time delay	Denied exit mode	Configuration
3	6	7	0	1	0	2	2	1	0	B

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4	Requirements			
4.1	General			
4.1.1	Compliance	Where an exit system contains elements that are already proven to EN 1125 or EN 179 standards, those elements shall nevertheless be subject to the specific requirements of this standard	No operating element	N/A

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.1.2	Association between components			
4.1.2.1	Technically independent components	The manufacturer of an electrically controlled exit system may be combined with “technically independent components”, with mechanical exit devices according to EN 179 or EN 1125.	No Technically Independent Components	N/A
		On a door in an escape route equipped with the Exit System in combination with an exit device, this exit device will comply with EN 1125 or EN 179, to maintain the performances of the complete combination.	No Exit Device	N/A
		It shall be on the manufacturer of an electrically controlled exit system to declare which exit devices to EN 1125 or EN 179 could be combined with the exit system.	None	N/A

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.1.2.2	Technically dependent components	On the other hand, systems according to EN 13637 may include “technically dependent components”, with an electrical and/or a mechanical interaction on the safety functions of the exit systems, an exit device according to EN 1125 or EN 179 such as an initiating element being integrated in the operating element. In this case, this device is part of the complete system and covered by EN 13637, and an exhaustive list of all possible components shall be written in the system manufacturer instructions	No Technically Dependant Components	N/A
4.1.3	Access level	The system shall be designed to be operated by adequate access levels. NOTE The access levels for each operation on electrically controlled exit system are described in Annex D.	No CMC. Reset by key. Controlling Element in secure enclosure.	Pass

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2	Ability to release (for doors on escape routes)			
4.2.1	Number of operations to release	The release of an electrically controlled exit system shall be achieved by either one or two single operations, not requiring any other action e.g. the use of a key or any other object.	One operation. 5 s delay.	
		The design of an electrically controlled exit system shall be such that neither of the two single hand operations permitted requires a reverse movement of the initiating or operating element in the direction towards its original position before an exit can be achieved, regardless of the sequence of the operation.	No reverse movement.	
				Releases in 2 single operations maximum

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.2	Operation of initiating element	An initiating element shall operate: — Horizontally (e.g. for a push button, or an initiating element integrated into a panic exit device type touch bar), or — Parallel to the door face and downwards (e.g. for an initiating element integrated into a lever handle) or — Horizontally and downwards. (e.g. for an initiating element integrated into a panic exit device type push bar or a push pad).	Horizontal Operation.	
				Operates correctly

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.3	Input signal from an alarm system	If the exit system is designed to be linked to an alarm system, then it shall be able to receive a signal to release the locking element and shall allow exit according to one of the following release modes: a) Immediate automatic release within a time of 1 second of the electrical locking element: the exit system shall allow immediate exit by operating the operating element or by pushing the door; b) Immediate release within a time of 1 second on request of the release of electrical locking element (time delay reset to zero but no release of the electrical locking element): the exit system shall allow immediate exit after operating the initiating element and the operating element; optionally, the electrical locking element can be released from a central management control(CMC) ;	t1 – 5 s. Immediate automatic release. Immediate relock on alarm stop.	
		The exit system product information shall include the limitations of the type(s) of signal and the release mode that can be processed.	Included in specifications	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		When the exit system is designed to enable two release modes, the requested release mode shall be set only during the installation stage by requiring a specific tool and/or identification means.	N/A	
		Table 14 —Release function test		
		No time delay, start position	Pass	
		Time delay t1	Pass	
		Time delay t2	N/A	
		Denied exit mode	N/A	
		Table 15 —Release function test		
		Earth	Operates correctly	
		Short circuit	Operates immediately	
		Line disconnection	Does not operate	
				Input signal OK

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.4	Resetting conditions	An exit system shall be designed to be reset manually at the door. The resetting of the exit system at the door shall be achieved with a tool or a key, or other means of identification to reserve this operation to authorized personnel. Where the exit system is linked to a central management control (CMC) monitoring the exit, the resetting shall be achieved from the CMC after a minimum time of 60 s from the release of the electrical locking element.		
		Table 1 — Resetting conditions		
		Release from external alarm system	Pass	
		Emergency release with impulse initiating element	Pass	
		Emergency release with bistable initiating element	N/A	
		After t1 or t2	t1 Pass	
		One failure detection	Pass	
		After power failure	Pass	
		CMC emergency push button	N/A	
		Release with impulse initiating element included in the operating element without time delay	N/A	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
				Resetting conditions OK
4.2.5	Operating element	When an exit system incorporates an operating element, using either a horizontal bar, lever handle or push pad, it shall conform to the requirement of EN 1125 or EN 179. When an operating element incorporates electrical locking, the exit system in a non-energized state shall conform to EN 1125 or EN 179. Chances are that the exit system may be operated by the public in the wrong sequence (i.e. operate the operating element and then operate the initiating element). This should not impede the safe release of the exit system under load. See 4.2.8 and 5.2.8.	N/A	
				N/A

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.6	Fail safe function and reliability of liaison and transmission paths			
4.2.6.1	General	The design of an electrically controlled exit system shall be such that any failure of a component included in a single electrical element (initiating element, controlling element, electrical locking element, CMC or safety connections) or any failure of the connection between the controlling, initiating or locking elements shall not affect the immediate release of the door or at the end of the set time delay. In addition, if after a request or a release, one of the relevant safety components concerned by the ability to release fails, the exit system shall not allow any automatic or manual reset until been repaired. This is also required if one redundant component or function is affected by the failure.	Pass ICS provided a statement confirming that they had self-assessed the unit to safety integrity level SIL 2 (C2/F2/P2/W2} according to EN61508-1 such that the design of the exit system meant that any failure of a component included in a single electrical element or any failure of the connection between the controlling, initiating or locking elements would not affect the immediate release of the door or at the end of the set time delay. In addition, after a request or a release, one of the relevant safety components concerned by the ability to release fails, the exit system would not allow any automatic or manual reset until been repaired.	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		Any additional feature incorporated in an exit system, for example access control, time zoning, monitoring or security functions, shall not reduce the safety performance of the system. When the manufacturer offers any additional functions not covered by this standard, these shall be listed in the product information document. If tests conducted by the test lab have shown that additional functions do not have any influence on the safety function, they do not have to be verified.	N/A	
		In addition, the design of the initiating element shall be:		
		— in compliance with the EN 60947-5-5;	N/A – Initiating device is non-latching	
		— and/or shall ensure that under the operation with a force of maximal 80 N, the direct opening action component shall prevent the case of melting contact (one single failure).	The EDS Enforcer is designed with dry contact relays, used in volt-free applications which eliminate the possibility of contact burn-out.	
		Compliance shall be verified by visual inspection, functional tests and/or measurements and 5.2.6.	Pass	
				Fail safe

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.6.2	Software and hardware documentation	Only safety-relevant functions have to be documented and checked. This refers to the hardware and the software. The manufacturer shall prepare documentation for the test laboratory that gives an overview of the hardware and of the software design if it includes safety-relevant functions. It shall include at least the following:		
		a) a functional description of the hardware and software design and main program flow (e.g. as logical and electrical diagram, a flow diagram or structogram) including:	Provided	
		1) a brief description of the modules and the functions that they perform;	Provided	
		2) the way in which the modules interact;	Provided	
		3) the overall hierarchy of the program;	Provided	
		4) the way in which the software interacts with the hardware of the device;	Provided	
		5) the way in which the modules are called, including any interrupt processing.	Provided	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		b) a description of which areas of memory are used for the various purposes (e.g. the program, site specific data and running data);	N/A	
		c) a designation, by which the software and its version can be uniquely identified.	Declaration supplied	
		The manufacturer shall also prepare detailed design documentation, which only needs to be provided if required by the testing authority. It shall comprise at least the following:	Not required	
		d) an overview of the whole system configuration, including all software and hardware components;	Not required	
		e) a description of each module of the program, containing at least: 1) the name of the module; 2) a description of the tasks performed; 3) a description of the interfaces, including the type of data transfer, the valid data range, and the checking for valid data.	Not required	
		If safety-relevant functions for the release of the door depend on software functions, the following requirements for software design shall apply:	N/A	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		f) the software shall have a modular structure;	N/A	
		g) the design of the interfaces for manually and automatically generated data shall not permit invalid data to cause any error in the program operation;	N/A	
		h) the software shall be designed to avoid the occurrence of deadlock of the program flow.	N/A	
		Compliance shall be verified by visual inspection, functional tests and/or measurements described in 5.2.6.	Pass	
				Software and hardware documented

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.7	Release force - Door not under pressure	When an electrical locking element or an electrically lockable operating element is tested in accordance with 5.2.7, it shall have a maximal test force of 80 N to release the door within 1s. When applicable, the force to operate the operating element shall correspond to EN 1125 or EN 179.	Release force 6.8 N	
				Release not under pressure
4.2.8	Release force - Door under pressure	When an electrical locking element or an electrically lockable operating element is tested in accordance with 5.2.8, it shall be able to release the door within 1s under a load of 1000 N in opening direction.	Electrical locking element Release force 12.4 N	
				Release under pressure

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.9	Release from the Initiating element	When an initiating element is tested in accordance with 5.2.9, it shall give an electrical release signal to the controlling element when operated with a force not exceeding 80 N.	Initiating Element operating force: 4.8 N	
		The design of the initiating element shall: a) either be in compliance with the EN 60947-5-5; or b) be equipped with a “direct opening action component” preventing a failure caused by a melted contact; or c) fulfil the “single failure” requirement according to 4.2.6.1.	The EDS Enforcer is designed with dry contact relays, used in volt-free applications which eliminate the possibility of contact burn-out.	
				Release from the initiating element

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.10	Release after power supply failure	An exit system shall be designed such that it guarantees a correct operation of the locking element to a threshold of 15 % less than its rated voltage (U min). When the system goes below the minimum specified, it shall guarantee the ability to release either immediately or after the set time delay. This requirement applies whether or not battery back-up supplies are incorporated. After the power supply is re-established, the exit system can be automatically reset.	12.0 V – Operates correctly 10.2 V – Operates correctly 9.2 V – Operates correctly 8.2 V – Operates but would not reset 7.1 V – Automatically releases 10.2 V – Operates correctly	
		The exit system shall be able to function correctly over the anticipated range of supply voltage conditions +15 % / −15 %.	10.2 V – Operates correctly 12.0 V – Operates correctly 13.8 V – Operates correctly	
		After the test, the door shall release immediately, or after the set time delay.	12.0 V – Operates correctly	
				Release after power supply failure

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.11	Dimensional and design			
4.2.11.1	Door free movement	The design of an exit system shall be such that the bolt head(s), or any other element, once the door has been released to open, does not restrict or impede the free movement of the door.	Pass	
		The design of an exit system can include a dogging mechanism or an automatic relatching device. If the exit system is equipped with a dogging mechanism or a device retaining the bolt(s) or any other element retracted, this shall not impede the free movement of the door once released.	N/A	
		An exit system shall be designed to avoid accidental release of the bottom bolt, or any other element, preventing the free opening of the door.	Pass	
		Exit systems intended for use on smoke/fire resisting doors, shall comply with 4.4.	N/A	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		The design of an exit system intended for use on double doorset leaves shall allow both leaves to be opened simultaneously and to swing freely in the direction of exit once the door has been released. For example, on rebated double doors, operating the exit system on the inactive leaf will release both the inactive and the active leaf.	N/A	
4.2.11.2	Exposed edges and corners	In order to avoid injury, an exit system shall have all edges and exposed corners rounded to a radius of not less than 0,5 mm.	Initiating / Controlling Element – Pass Electrical Locking Element - Pass	
4.2.11.3	Accessible gaps	An exit system shall be designed such that the top surface of any operating or initiating element, chassis or other mounting assembly does not contain any accessible gap that could inadvertently be blocked by a foreign object, resulting in failure of the exit system to operate. A steel test piece of 10 × 15 × 20 mm placed in any accessible gap and in any orientation shall not prevent correct operation of the exit system.	Pass	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.11.4	Projection in the clear passage			
		Any component of an exit system mounted on the door frame shall not obstruct the free opening of the door more than: — A = 70 mm from the clear opening, — B = 100 mm from the transom, to minimize the risk of injury to persons using the exit. See Figure 1.	No projection	
		Any initiating element integrated within an operating element (e.g. such as a sensitive bar) shall not project from the door face more than 150 mm (large projection) or 100 mm (standard projection). See EN 1125 or EN 179.	N/A	
4.2.11.5	Initiating element	An initiating element can be a separate element, such as a button, or it can form part of an operating element, such as a lever handle, a push pad or a bar. It can be activated for example by pushing a button, moving a switch or touching a sensitive part of the initiating element. The active surface area shall be:		

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		a) where an initiating element is part of a button, it shall have an active surface area of not less than 700 mm2, and no dimension of the active surface shall be less than 30 mm and not more than15 mm distance from the projecting point of the cover to activate;	Button 34.8 mm diameter. Area 951 mm^2 No cover	
		b) where an initiating element is part of a lever handle, the active surface area shall cover at least 80 % of its prehensile top surface and front face (part that can be reached by the hand) with a minimum height of 20 mm;	N/A	
		c) where an initiating element is part of a push pad, the active surface area shall cover at least 80 % of its prehensile top surface and front face (part that can be reached by the hand) with a minimum height of 20 mm;	N/A	
		d) where an initiating element is part of a bar extending across the door face, the active surface area shall cover at least 60 % of the door width with a minimum height of 20 mm;	N/A	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		e) where an initiating element is part of an operating element, the active area shall be clearly identified;	Pass	
		f) to avoid an accidentally activating of the initiating element, and create false alarms, is it allowed to cover the initiating element with a frame against perpendicular operation of the initiating element to the activating direction.	N/A	
4.2.11.6	Illuminating means of initiating element	Where the initiating element is not incorporated into an operating element, it shall have its own illuminating means to indicate the active surface area while the door is secured by locking element. Photoluminescence finishes as sole means are acceptable, providing that they comply with IEC 60050-845.	N/A	
4.2.11.7	Signalling elements	An electrically controlled exit system shall incorporate visual signalling elements at a distance of not more than 1 m from the initiating element to indicate its status.	Pass	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		An exit system with time delay function shall in addition to the visual signalling elements incorporate audible and/or visual signalling elements at a distance of not more than 1 m from the initiating element to indicate the remaining delay time until the locking element is released.	Pass	
		Signalling elements can be light emitting diodes (LED), down counter until exit permitted (i.e. bar graph, decreasing numbers, etc.) or other means.	Down Counter - Pass	
		An exit system with double time delay function shall be equipped such that the exit is visible and controlled by authorized personal either directly or by means of a video monitoring system.	N/A	
		An exit system with denied exit mode shall incorporate visual signalling elements at a distance of not more than 1 m from the initiating element to indicate that the electrical locking element remains locked.	N/A	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		Visual signalling elements are used to signal the state of an exit system, the following criteria shall be observed: — No light: exit system is not energized; — Red light: electrical locking element is locked; — Green light: electrical locking element is released; — Down counter (i.e. bar graph, decreasing numbers, etc.) for systems with time delay: time remaining until exit is permitted.	Pass	
		The rest of the visual signals shall be upon manufacturer instructions (flashing, warning, false use…).	N/A	
		Where audible signalling elements are used, the following criteria may be used: — Down counter for systems with time delay: time remaining until exit permitted (i.e. bips, pulse signals, etc.); — Request to exit: alert signal when pressing the initiating element; — False use warning: warning informing that the door is locked.	Pass	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
				Dimensions and design OK
4.2.12	Door mass and door dimensions	The exit system shall be tested with a test door according to the following mass and dimensions: — Door mass: max 200 kg; — maximum door width, excluding any rebates: up to 20 % increase of the width of the test door(i.e. maximum increased width = 1 320 mm); — maximum door height, excluding any rebates: up to 20 % increase of the height of the test door (i.e. maximum increased height = 2 520 mm).	Box 3. Door Mass Grade 4 100 kg, 25 N closing force 2,100 mm height and 1,100 mm width	
				Tested with a door width: 1,100 mm height: 2,100 mm mass: 100 kg

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.13	Keepers	In case of using exit device to EN 1125 or EN 179, the design of an exit system shall include a keeper(s) to keep the door in the secured position.	N/A	
		Keepers shall provide protection for any part of the door or frame that could be damaged by the exit system during the opening and closing cycle of the door.	Pass	
		The design of a floor keeper shall be such that dust and dirt can easily be removed. If the keeper is not fitted flush, the exposed part of the keeper shall not be upper than 15 mm in height (dimension H) from the surface to which it is mounted. It shall be chamfered in the direction of escape at an angle(M) not exceeding 45° from the horizontal, and any up stand (dimension P) shall not exceed 3 mm.	N/A	
				Keepers OK

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.14	Initiating element with cover	If an initiating element is equipped with a transparent cover, it shall be designed in such a way that it will not cause any injuries when operated.	N/A	
		A cover to an initiating element shall not require an additional operation to be removed or broken.	N/A	
				N/A
4.2.15	Finger trapping	The exit system will be designed in order to prevent the risk of trapping fingers and/or the blocking of the exit system.	Pass	
				Finger trapping test OK

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.16	Pictogram	The function of the initiating element of an exit system shall be clearly marked by using a pictogram, either on or adjacent to the initiating element. Its surface area shall be not less than 8 000 mm2 (or 2500 mm2 if the surface of the pictogram is actively illuminated). Its colours shall be white on a green background.	Dimensions 52 mm x 61 mm Area 3,120 mm^2 Actively illuminated White on green background	
		The following pictograms given in Figure 2 or as in EN ISO 7010:2012 shall be used:	Meets EN ISO 7010:2012 Reference E002	
				Pictograms OK

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.17	Time delay	If an exit system is designed to include time delay, it shall enable release after the initiating element has been operated and show the time delay status. When the exit system is tested in accordance with 5.2.18, the locking element shall be released immediately at the expiry of the set time delay.	Released Time delay status shown	
		The time delay of the exit system shall not exceed the following duration: — Grade 1: Single time delay — t1 = 15 s maximum;	5 s	
		— Grade 2: Double time delay — t1 = 15 s maximum; — t2 = 180 s maximum.	N/A	
				Box 9 Grade 1
4.2.18	Central Management Control	No CMC	N/A	
				N/A

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.19	Outside access device	The provision for a connection of an outside access device (key, cylinder, lever handle, knob, etc.) shall not, in any way, render the exit system inoperable from the inside, whether the outside access device is tested in the fully locked or unlocked position with the key removed.	N/A	
		The installation instructions shall clearly indicate the approved configurations for outside access.	N/A	
		An outside access device that is not specified by the manufacturer as designed to be compatible with a specific exit system shall not be considered to be in conformity with this document.	N/A	
		When an outside access device is intended for use with a thumb turn cylinder or any other device, the size and any positioning of this device shall not interfere with the operation of the exit system from the inside.	N/A	
				N/A

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.20	Security requirements			
4.2.20.1	From outside	This requirement is intended to cover security protection from outside attack.		
		The security test does apply for the 3 situations: — Electrical locking element only; — Electrical locking element combined with mechanical exit devices according to EN 179 or EN 1125 as a “technically independent components” (according to 4.1.2); — Electrically lockable operating elements (including the locking point).	Electrical locking element only	
		When an exit system is tested in accordance with 5.2.20.1 it shall enable the door to remain when subjected to a force of: — Grade 2: 1000 N; — Grade 3: 2000 N; — Grade 4: 3000 N; — Grade 5: 5000 N; — Grade 6: > 5000 N according to the defined product declaration.	Box 7 Grade 2 1,000 N	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		The security grade obtained by the system will be the highest level achieved either by: — electrical locking elements; — or electrically lockable operating elements; — or combination of electrical locking element with mechanical exit device, when separate measurement shall be conducted for the electrical locking element and the exit device.		
				Box 7 Grade 2

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.2.20.2	From inside	This requirement is intended to cover security protection from inside attack and does apply only to electrical locking elements or electrically lockable operating elements. The test results from the security from outside for the electrical locking element can be used to fulfil this requirement, due to the fact that the electrical locking element locks the door to the frame, and there is no difference from inside to outside.	Electrical locking element only	
		When an exit system is tested in accordance with 5.2.20.2 it shall enable the door to remain secured solely by means of electrical locking elements or electrically lockable operating elements when subjected to a force of: — Grade 1: 500 N; — Grade 2: 1000 N; — Grade 3: 2000 N; — Grade 4: 3000 N; — Grade 5: 5000 N; — Grade 6: > 5000 N according to the defined product declaration.	Box 8 Grade 2 1,000 N	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		When the exit system includes several electrical locking element, the test shall be conducted for each separate electrical locking point.	N/A	
				Box 8 Grade 2

4.3	Self-closing ability C (for fire/smoke doors)	An exit system shall reengage fully the electrical locking element into the secured position in order to avoid the use of chains, bolts, etc. to provide extra security without jeopardizing the ability to release.	Pass	
		An electrical locking element with mechanical reengaging shall be tested in accordance with Reengagement tests of electrical locking element of 5.3. The force required to reengage shall not exceed 50 N.	7.5 N Pass	
		When an electrically controlled exit system is combined with an independent mechanical exit device to EN 1125 or EN 179, this mechanical exit device shall be disengaged for the purpose of this test.	N/A	
		The reengagement force of the electrical locking element shall be recorded and shall be part of the product information.	Pass	
		If an exit system intended for use on self-relatching smoke/fire-resisting doors allows for automatic rebolting, it shall be designed to avoid accidental rebolting while the door is opened, preventing the self-closing of the door.	Pass	
				Box 4 Grade 0

4.4	Suitability for use on fire and smoke doors	An exit system intended for use on smoke/fire-resisting door assemblies shall meet the following requirements in accordance with its intended grade described in 7.2.5. Grade A: exit systems of Grade A representative of their type shall have been subjected to a successful evaluation proving their suitability for use on smoke doors. For this, all parts of the exit system that are responsible for keeping the door in its closed position shall be made out of material with a melting point of not less than 300 °C. If the exit system is equipped with a latch bolt and the latch bolt could be the only part of the exit system that keeps a smoke door in its closed position, then the projection of the latch bolt shall be at least 10 mm. Installation instructions shall ensure that the engagement of the latch bolt inside the locking plate is not less than 6 mm. Grade B: Exit systems of grades B representative of their type and including any outside access devices intended for fire door use shall have been subjected to a successful fire test conducted at least on the exposed face of the door in accordance with EN 1634-1	N/A Not Suitable for use on fire and smoke doors	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		to prove the contribution of the exit system to the fire resistance of the complete door assembly. It is not required for the exit system to be operable after such a fire test. During fire/smoke tests, the exit system shall not depend on power supply to maintain the door in the closed position. Details of the inclusion or otherwise of a dogging mechanism in the fire test samples shall form a part of the final fire test report. Compliance shall be verified by the test methods of EN 1634-1 or EN 1634-2, and EN 1634-3.		
				Box 4 Grade 0

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.5	Control of Dangerous substances	National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets. In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.	ICS provided a declaration that they complied with the requirements of the British and European law, on the Restriction of Hazardous Substances (RoHS) directive 2015/863.	**Pass**

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.6	Durability of ability to release			
	4.6.1 General	When an exit system is tested in accordance with 5.6.1, each of its elements shall complete the number of cycles according to Table 3. Grade 6 – 100,000 Grade 7 – 200,000 Grade 8 – 500,000 Grade 9 – 1,000,000	Electrical Locking Element Box 2 Grade 6 100,000 cycles	
		After the test, the exit system shall comply with the release requirements of 4.2.	Pass	
		When the initiating element is not incorporated in the operating element but is a separate initiating element, i.e. installed on a door frame, then the test cycles for the initiating element shall be reduced according to Table 3 Grades 6 to 9 – 6,000	Initiating Element / Controlling Element Box 2 Grade 6 6,000 cycles	
	.	After the test, the separate initiating element shall comply with the release requirements of 4.2.		
				Box 2 Grade 6

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.6.2	Abuse resistance of electrical locking element	When the electrical locking element is tested in accordance with 5.6.2 it shall withstand a force of 500 N.	Not accessible	
		After the test, the exit system shall pass the release test of 5.2.7.	Pass	
				Withstand abuse force of 500 N
4.6.3	Abuse resistance of initiating element	When the initiating element is tested in accordance with 5.6.3, and depending on the projection of the initiating element, different abuse side forces are given in Table 4:	Projection of push button > 30 mm and < = 100 mm. 300 N load applied to centre of pictogram, push button and LED display.	
				Withstand abuse force of 300 N
4.6.4	Abuse resistance of electrically lockable operating element	When an electrically lockable operating element is tested in accordance with 5.6.4, it shall withstand the same force according to the grade of the security requirements from inside (see 4.2.20.2).	N/A	
		After the test, the exit system shall meet the requirement of 4.2.6.		
				N/A

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.6.5	Environmental requirements - Temperature range requirement	Materials selected in the design of an exit system shall be suitable for the operation of the exit system between temperatures of −10 °C and +55 °C. The maximum release force at −10 °C and at +55 °C shall not exceed +25 % in excess of the release force measured at 20 °C. This requirement shall be verified by the test specified in 5.6.5 (Temperature).	−10 °C – Push Button force 7.2 N, 7.6 N, 7.6 N +55 °C – Push Button force 6.4 N, 6.2 N, 6.4 N	
				Tested between −10 and +55°C

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.6.6	Environmental requirements - Corrosion resistance requirement	The initiating element, the locking element, and/or any operating element which is electrically lockable shall be able to withstand the long term effects of a corrosive environment without impairing the ability to release of the electrically controlled exit system, and shall meet at least the grades given in Table 5, in accordance with EN 1670. Grade according to EN 1670 0 indoor zone 1 indoor zone, where condensation may occur 2 outdoor zone	Box 6 Grade 0 Test N/A	
		If the controlling element is integrated with any other element, then it shall be able to withstand the long term effects of a corrosive environment without impairing the ability to release of the electrically controlled exit system, and shall meet at least upper listed grades in accordance with EN 1670.	N/A	
				Box 6 Grade 0

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.6.7	Environmental requirements - Dry Heat resistance requirement	The initiating element, the controlling element, the locking element, and/or any operating element which is electrically lockable shall be able to withstand the effects of a dry heat environment without impairing the ability to release of the electrically controlled exit system. The requirement does not apply to the installation wiring connecting the above elements. The electrical exit system shall fulfil the test described into 5.6.7, referring to EN 60068-2-2:2007 in which: — Test procedure is type Be; — Condition is 55 °C; — Duration is 16 h.	Pass	
				Dry Heat resistant

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.6.8	Environmental requirements - Cold resistance requirement	The initiating element, the controlling element, the locking element, and/or any operating element which is electrically lockable shall be able to withstand the effects of a cold environment without impairing the ability to release of the electrically controlled exit system. The requirement does not apply to the installation wiring connecting the above elements. The electrical exit system shall be able to function correctly at low ambient temperatures of −10°, which may occur for short periods in the anticipated service environment. The test refer to EN 60068-2-1:2007, — Test procedure type Ae; — Condition −10 °C; — Duration 16 h.	Pass	
				Cold resistant

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.6.9	Environmental requirements - Damp heat cyclic (12h + 12h) resistance requirement	The initiating element, the controlling element, the locking element, and/or any operating element which is electrically lockable shall pass or not the test described in 5.6.9, according to Table 6. To be able to withstand the effects of a high humidity when combined with cyclic temperature changes without impairing the ability to release of the electrically controlled exit system. The requirement does not apply to the installation wiring connecting the above elements. The equipment shall be able to function correctly in a damp heat environment, which may occur for short periods in the anticipated service environment.	Box 6 Grade 0 Test N/A	
				Box 6 Grade 0

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.6.10	Environmental requirements - Impact resistance requirement	The purpose of this requirement is to simulate normal use of the system and ensure that impacts have no negative influence on the function of the system. The requirements given in Table 7 shall be fulfilled.	Initiating Element (34.8 mm diameter) h = 100 mm – Pass Electrical Locking Element h = 320 mm – Pass Controlling Element N/T	
		To avoid an interrupt of the time delay t1/t2 or denied exit mode with a mechanical impact the system shall withstand the requirements given in Table 8:		
				Impact Resistant

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.6.11	Environmental requirements - Rated voltage requirements	A locking, controlling, or initiating element manufactured to this standard shall be designed for rated voltages of maximum 48 V DC. The values of power supply shall be as indicated in Table 9.	12 V Pass	
		The tests shall be carried out with the values of power supply as indicated in Table 10.	Pass	
		The power consumption shall be declared in the product information to check the suitability of the system to the intended power supply.	Required supplied power detailed in product specification	
				Rated voltage checked
4.6.12	Electrical hazards safety requirements (Low voltage)	The exit system shall be so designed and constructed that, under all conditions of normal use and under a likely fault condition, it protects against the risk of personal injury from electric shock and other hazards, and against serious fire originating in the equipment.	Power supply 12 V DC. Tests not applicable.	
				Safe against electrical hazards

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.6.13	Environmental requirements - Electromagnetic compatibility (EMC) requirements and/or Radio and telecommunication terminal equipment (R&TTE)			
4.6.13.1	Emission	The exit system shall provide a given level of emission. The exit system shall comply with the following provisions: — EN 61000-6-3, Electromagnetic compatibility – Generic standard for emission for commercial and light industry environment; — EN 55022, Limits and methods of measurements of radio disturbances – characteristics of information technology equipment.	Certificate supplied for Enforcer Certificate supplied for ML 450 N/A	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		In addition, where power supply is part of the exit system, this shall comply with the following provisions: — EN 61000-3-2, Testing and measurement techniques – Limits – Limits for harmonic current emissions; — EN 61000-3-3, Testing and measurement techniques – Environment – Compatibility levels for— EN 61000-3-3, Testing and measurement techniques – Environment – Compatibility levels for low frequency conducted disturbances and signalling in public low-voltage power supply systems. low frequency conducted disturbances and signalling in public low-voltage power supply systems.	N/A	
4.6.13.2	Immunity	Because of its safety objectives, the exit system shall provide a high level of immunity. Where applicable, the exit system shall comply with the following requirements: — EN 61000-6-2, Electromagnetic compatibility – Generic standard for immunity for industrial environment.	Report supplied	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		In addition, the following standards can be used: — EN 61000-4-2, Testing and measurement techniques – Electrostatic discharge immunity test; — EN 61000-4-3, Testing and measurement techniques – Radiofrequency magnetic fields; — EN 61000-4-4, EMC Testing and measurement techniques – Electrical fast transient - Burst immunity test; — EN 61000-4-5, EMC Testing and measurement techniques – Surge immunity test; — EN 61000-4-6, EMC Testing and measurement techniques – Immunity to conducted disturbances, inducted by radiofrequency fields; — EN 61000-4-8, EMC Testing and measurement techniques – Power frequency magnetic field immunity test.	Supplied for Enforcer - B Supplied for ML 450 - B Supplied for Enforcer - A Supplied for ML 450 - A Supplied for Enforcer - B Supplied for ML 450 - B Supplied for Enforcer - B Supplied for ML 450 - B Supplied for Enforcer - A Supplied for ML 450 - A Supplied for Enforcer - A Supplied for ML 450 - A	

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
		In addition, where power supply is part of the exit system, this shall comply with the following requirements: — EN 61000-4-11, EMC Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests.	N/A	
4.6.14	Environmental requirements – IP Protection against solid foreign objects and ingress of water and dust	The exit system shall provide a level of protection against dust and water. The initiating, controlling and locking elements of the exit system shall comply with the following provisions. Compliance is checked by the test methods of 5.6.14. The IP Protection shall comply with Table 13.	Box 6 Grade 0 IP 30 Initiating Element / Controlling Element – Pass Electrical Locking Element - Pass	
				Box 6 Grade 0

Clause No.	Description	Requirements	Test results	Grade/ Pass / Fail
4.7	Durability of self-closing ability C against ageing and degradation (for fire/smoke doors)	When an exit system is tested in accordance with 5.7, each of its elements shall complete the number of cycles according to Table 3. After the test, the exit system shall comply with the requirements of 4.3.	N/A Not Suitable for use on fire and smoke doors	
				Box 4 Grade 0
6.	Assessment and verification of constancy of performance - AVCP		ICS declared that their quality systems complied with this clause as evidenced by their ISO 9001:2015 certification (1/2/2024)	**Pass**
8.0	Marking			
8.1	Product	Manufacturer's name or trademark		**Pass**
		Dated reference to EN 13637:2015		**Pass**
		Month and year of manufacture		**Pass**
8.2	Packaging	Manufacturer's name or trademark		**Pass**
		Manufacturer's product reference number		**Pass**
8.3	Installation instructions	Name or identifying mark of manufacturer		**Pass**
		Registered address of manufacturer		**Pass**
		Dated reference to EN 13637:2015		**Pass**
		Classification		**Pass**
		Manufacturer's product reference number		**Pass**
		List of approved components		**Pass**

Summary

Samples of:
Manufacturer ICS Security Solutions Ltd
Product: EDS Enforcer delayed egress controlling element with ML450 monitored lock case

have been tested in accordance with EN 13637:2015

Results as detailed below:

4 Requirements	Initiating Element	Controlling Element	ML450
4.1 General			
4.1.1 Compliance	N/A	N/A	N/A
4.1.2 Association between components			
4.1.2.1 Technically independent components	N/A	N/A	N/A
4.1.2.2 Technically dependent components	N/A	N/A	N/A
4.1.3 Access level	Pass	Pass	N/A
4.2 Ability to release (for doors on escape routes)			
4.2.1 Number of operations to release	Pass	Pass	N/A
4.2.2 Operation of initiating element	Pass	N/A	N/A
4.2.3 Input signal from an alarm system	Pass	Pass	N/A
4.2.4 Resetting conditions	Pass	Pass	N/A
4.2.5 Operating element	N/A	N/A	N/A
4.2.6 Fail safe function and reliability of liaison and transmission paths			
4.2.6.1 General	Pass	Pass	Pass
4.2.6.2 Software and hardware documentation	Pass	Pass	N/A
4.2.7 Release force - Door not under pressure	N/A	N/A	Pass
4.2.8 Release force - Door under pressure	N/A	N/A	Pass
4.2.9 Release from the Initiating element	Pass	N/A	N/A
4.2.10 Release after power supply failure	Pass	Pass	Pass
4.2.11 Dimensional and design	Pass	Pass	Pass
4.2.12 Door mass and door dimensions	Pass	Pass	Pass
4.2.13 Keepers	N/A	N/A	Pass
4.2.14 Initiating element with cover	N/A	N/A	N/A
4.2.15 Finger trapping	Pass	Pass	Pass
4.2.16 Pictogram	Pass	N/A	N/A
4.2.17 Time delay	Grade 1	Grade 1	Grade 1
4.2.18 Central Management Control	N/A	N/A	N/A
4.2.19 Outside access device	N/A	N/A	N/A
4.2.20 Security requirements			
4.2.20.1 From outside	N/A	N/A	Grade 2
4.2.20.2 From inside	N/A	N/A	Grade 2
4.3 Self-closing ability C (for fire/smoke doors)	Grade 0	Grade 0	Grade 0

4.4 Suitability for use on fire and smoke doors	N/A	N/A	N/A
4.5 Control of Dangerous substances	Pass	Pass	Pass
4.6 Durability of ability to release (against ageing and degradation for doors on escape routes			
4.6.1 General	Grade 6	Grade 6	Grade 6
4.6.2 Abuse resistance of electrical locking element	N/A	N/A	Pass
4.6.3 Abuse resistance of initiating element	Pass	N/A	N/A
4.6.4 Abuse resistance of electrically lockable operating element	N/A	N/A	N/A
4.6.5 Environmental requirements - Temperature range requirement	Pass	Pass	Pass
4.6.6 Environmental requirements - Corrosion resistance requirement	Grade 0	Grade 0	Grade 0
4.6.7 Environmental requirements - Dry Heat resistance requirement	Pass	Pass	Pass
4.6.8 Environmental requirements - Cold resistance requirement	Pass	Pass	Pass
4.6.9 Environmental requirements - Damp heat cyclic (12h + 12h) resistance requirement	Grade 0	Grade 0	Grade 0
4.6.10 Environmental requirements - Impact resistance requirement	Pass	Pass	Pass
4.6.11 Environmental requirements - Rated voltage requirements	Pass	Pass	Pass
4.6.12 Electrical hazards safety requirements (Low voltage)	N/A	N/A	N/A
4.6.13 Environmental requirements - Electromagnetic compatibility (EMC) requirements and/or Radio and telecommunication terminal equipment (R&TTE)			
4.6.13.1 Emission	Pass	Pass	Pass
4.6.13.2 Immunity	Pass	Pass	Pass
4.6.14 Environmental requirements – IP Protection against solid foreign objects and ingress of water and dust	Grade 0	Grade 0	Grade 0
4.7 Durability of self-closing ability C against ageing and degradation (for fire/smoke doors)	N/A Grade 0	N/A Grade 0	N/A Grade 0
6 Assessment and verification of constancy of performance - AVCP	Pass	Pass	Pass
8. Marking	Pass	Pass	Pass

NOTES:
Not all tests are applied to all samples: Tests marked # are not applied to that sample of lock.
Tests marked N/A are not applicable to the type of device under test.
Tests marked N/T were not applied to the device under test
No inferences can be made regarding performance against other requirements of this standard

Overall EN 13637:2015 Classification Attained*.

1	2	3	4	5	6	7	8	9	10	11
Category of use	Durability	Door mass	Suitability for use on fire / smoke doors	Safety	Corrosion humidity and IP protection	Security / holding force from outside	Security / holding force from inside	Time delay	Denied exit mode	Configuration
3	6	7	0	1	0	2	2	1	0	B

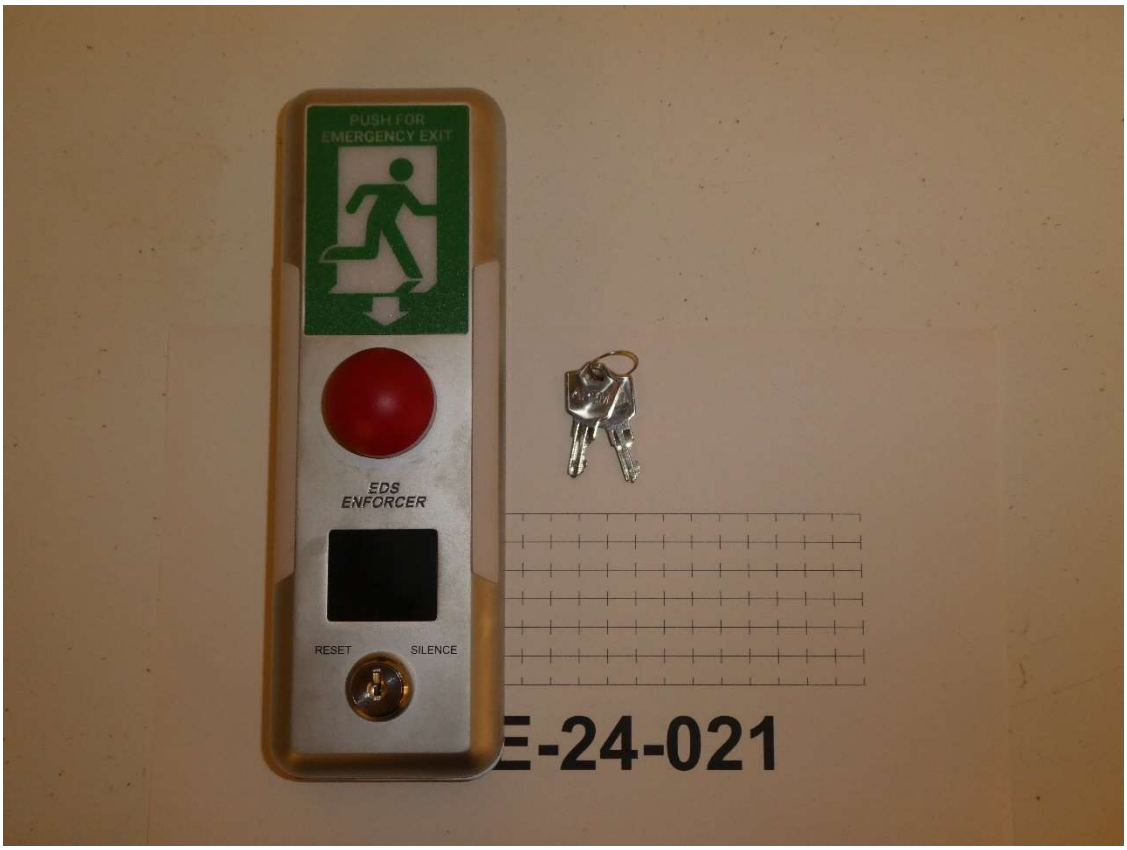
Report authorised by:

Dr Martin White
Director

Date: 19 August 2024

REPORT ENDS

Appendix A – Photographs



EDS Enforcer delayed egress controlling element

ML 450 Electronic Lock

Appendix B – Supplied Documentary Evidence

A10002, A10020	EMC Certificate	Sporton Lab. EC3D0908-02
A10002, A10020	EMC Certificate and Report	Shenzhen Testing CTL1901168121-EC
Enforcer	EMC Certificate	Shenzhen Most MTZS24064056
Enforcer	EMC Report	Guangdong Dongdian Testing DDT-RE24072324-1E01
EDS Enforcer with A10002	Instructions	ICS
EDS Enforcer with A10020	Instructions	ICS
EDS Enforcer with ML450	Instructions	ICS
ML 450M	EMC Report	Sporton International EC1D2339
All Products	Quality Certificate	Ares International ARES/TW/I2402015Q
ML450M	EN 14846 Report	Intertek
All Products	ROHS Statement	ICS
EDS Enforcer	Fail Safe Statement (Safety Integrity Level SIL 2 (C2/F2/P2/W2} to EN61508-1)	ICS
EDS Enforcer hardware and software design	Description of operation for test house.	ICS